SECTION PR
PROPELLER SHAFT

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NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

PFP:00003

NVH Troubleshooting Chart

ADS0015R

Use the chart below to help you find the cause of the symptom. If necessary, repair or replace these parts.

Reference page		PR-3	PR-6	—	PR-4	—	PR-3	PR-4	NVH in RFD section	NVH in FAX, RAX, FSU, and RSU section	NVH in WT section	NVH in WT section	NVH in FAX and RAX section	NVH in BR section	NVH in PS section
Possible cause and SUSPECTED PARTS		Uneven rotating torque	Center bearing improper installation	Excessive center bearing axial end play	Center bearing mounting (insulator) cracks, damage or deterioration	Excessive joint angle	Rotation imbalance	Excessive runout	DIFFERENTIAL	AXLE AND SUSPENSION	TIRES	ROAD WHEEL	DRIVE SHAFT	BRAKES	STEERING
Symptom	Noise	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	Shake		×			×				×	×	×	×	×	×
	Vibration	×	×	×	×	×	×	×		×	×		×		×

×: Applicable

REAR PROPELLER SHAFT

PFP:37000

On-Vehicle Inspection

ADS0015S

APPEARANCE AND NOISE INSPECTION

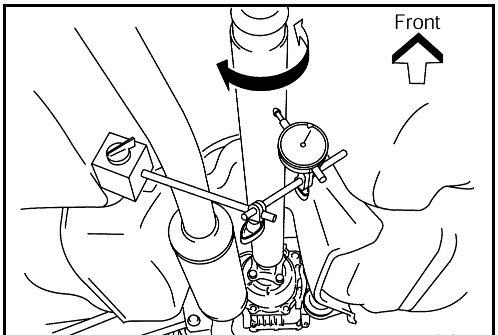
- Check the propeller shaft tube surface for dents or cracks. If damaged, replace propeller shaft assembly.
- If center bearing is noisy or damaged, replace propeller shaft assembly.

PROPELLER SHAFT VIBRATION

If vibration is present at high speed, inspect propeller shaft runout first.

1. Measure propeller shaft runout at runout measuring points by rotating final drive companion flange with hands.

   Propeller shaft runout limit : 0.6 mm (0.024 in) or less

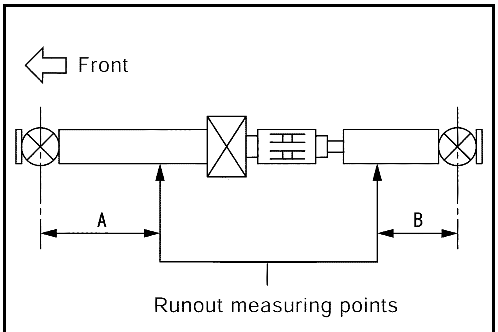


PDIA0421E

   Propeller shaft runout measuring points

   Dimension A: 469.5 mm (18.48 in)

   B: 414.5 mm (16.32 in)



PDIA0174E

2. If runout still exceeds specifications, separate propeller shaft at final drive companion flange or transfer companion flange; then rotate companion flange 90, 180, 270 degrees and install propeller shaft.
3. Check runout again. If runout still exceeds specifications, replace propeller shaft assembly.
4. Check the vibration by driving vehicle.

Removal and Installation

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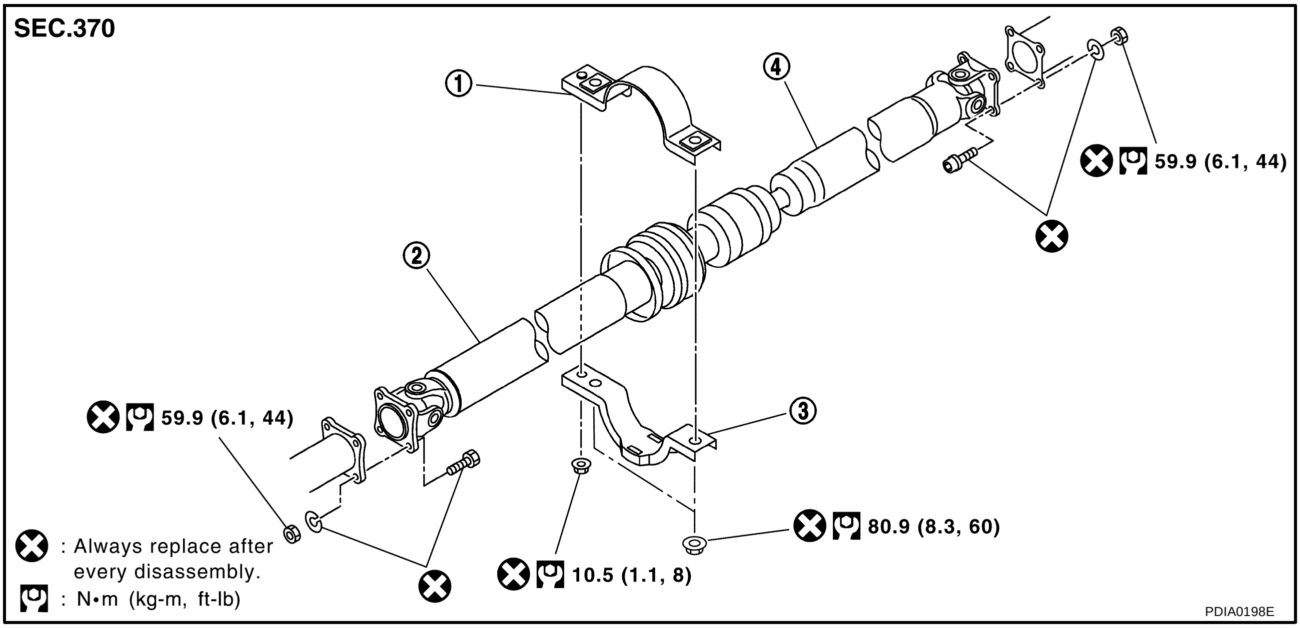
COMPONENTS



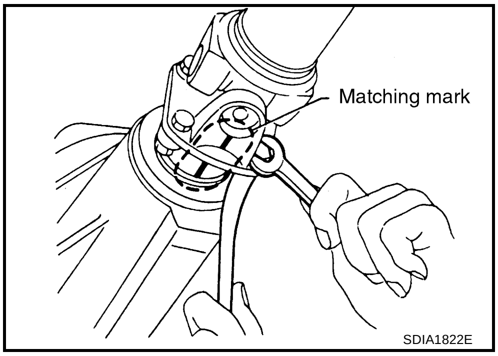
1. Center bearing mounting bracket (Upper)
2. Propeller shaft (1st shaft)
3. Center bearing mounting bracket (Lower)
4. Propeller shaft (2nd shaft)

REMOVAL

1. Move A/T selector lever to N position or set M/T shift lever to neutral position.
2. Release parking brake.
3. Put matching marks onto propeller shaft flange yoke and final drive and transfer companion flanges.

   CAUTION:

   For matching mark, use paint. Do not damage propeller shaft flange and companion flanges.



4. Loosen mounting nuts of center bearing mount brackets.
5. Remove fixing nuts and bolts from propeller shaft companion flanges.
6. Remove center bearing mounting bracket fixing nuts.
7. Remove propeller shaft.

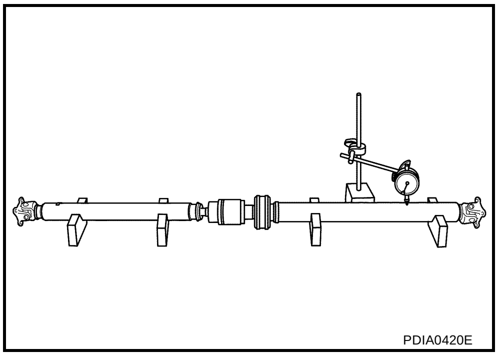
   CAUTION:

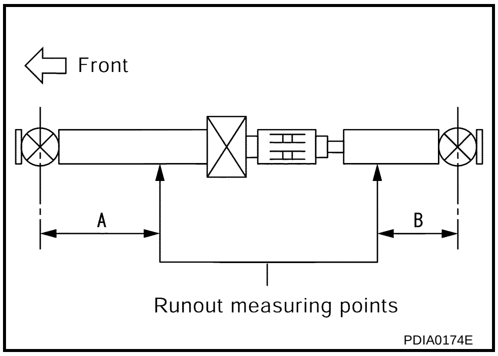
   If constant velocity joint was bent during propeller shaft assembly removal, installation, or transportation, its boot may be damaged. Wrap boot interference area to metal part with shop cloth or rubber to protect boot from breakage.

INSPECTION

- Inspect propeller shaft runout at measuring points. If runout exceeds specifications, replace propeller shaft assembly.

  Propeller shaft runout limit : 0.6 mm (0.024 in) or less

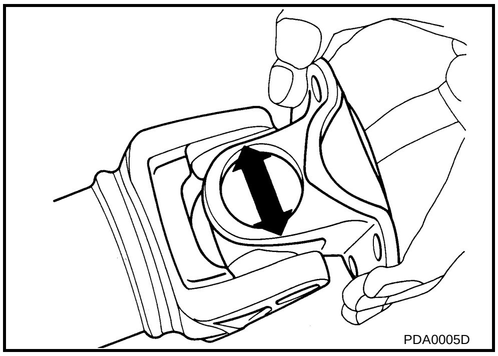




Propeller shaft runout measuring points

Dimension A: 469.5 mm (18.48 in)

B: 414.5 mm (16.32 in)



- As shown in the figure, while fixing yoke on one side, check axial play of joint. If outside the standard, replace propeller shaft assembly.

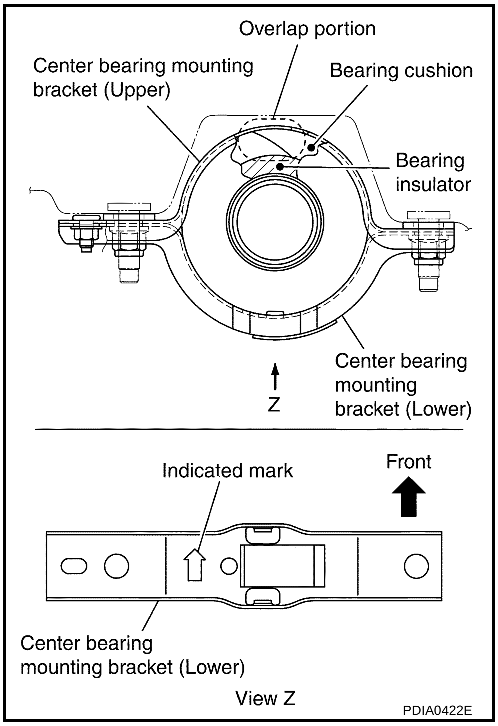
Journal axial play : 0 mm (0 in)

- Check propeller shaft for bend and damage. If damage is detected, replace propeller shaft assembly.
  CAUTION:
  Do not disassemble joints.
- Check center bearing for noise and damage. If noise or damage is detected, replace propeller shaft assembly.
  CAUTION:
  Do not disassemble center bearing.

INSTALLATION

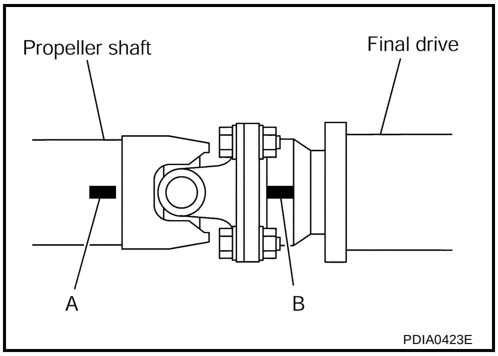
Note the following, and install in the reverse order of removal.

- Align matching marks to install propeller shaft to final drive and transfer companion flanges, and then tighten to specified torque. Refer to PR-4, "COMPONENTS" .
- When installing center bearing, position bearing cushion overlap upward as shown in the figure.
- Install center bearing mounting bracket (Lower) with its arrow mark facing forward.
- Adjust position of mounting bracket sliding back and forth to prevent play in thrust direction of center bearing insulator. Install bracket to vehicle.
- After assembly, perform a driving test to check propeller shaft vibration. If vibration occurred, separate propeller shaft from final drive or transfer. Reinstall companion flange after rotating it by 90, 180, 270 degrees. Then perform driving test and check propeller shaft vibration again at each point.

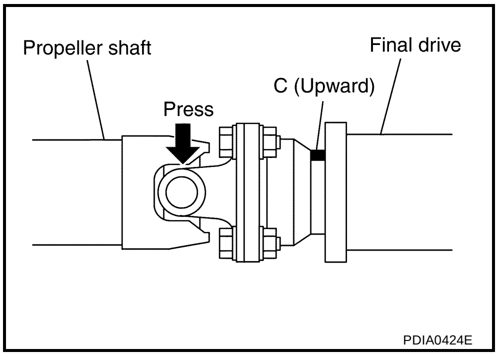


- If propeller shaft or final drive has been replaced, install them as follows;

1. Install propeller shaft while aligning its matching mark A with the matching mark B on the joint as close as possible.
2. Temporarily tighten bolts and nuts.



3. Press down propeller shaft with matching mark C facing upward. Then tighten fixing bolts and nuts to the specified torque. Refer to PR-4, "COMPONENTS" .



SERVICE DATA AND SPECIFICATIONS (SDS)

PFP:00030

General Specifications

ADS0015U

Applied model		QR25DE
Propeller shaft model		3F63A-DOJ87
Number of joints		3
Coupling method with transfer		Flange type
Type of journal bearings		Shell type (Non-disassembly type)
Shaft length	1st (Spider to cardan joint center)	1,067 mm (42.01 in)
	2nd (Cardan joint center to spider)	908 mm (35.75 in)
Shaft outer diameter	1st	63.5 mm (2.500 in)
	2nd	63.5 mm (2.500 in)

Journal Axial Play

ADS0015X

Model	3F63A-DOJ87
Journal axial play	0 mm (0 in)

Propeller Shaft Runout

ADS0015Y

Model	3F63A-DOJ87
Propeller shaft runout limit	0.6 mm (0.024 in) or less